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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,651	11/07/2001	Amnon Ganot	Q80298	1909

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EXAMINER

LAVIN, CHRISTOPHER L

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/045,651	Applicant(s) GANOT ET AL.	
	Examiner Christopher L. Lavin	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-11,13-18 and 20-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-11,13-18 and 20-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the amendment filed on 12/01/05

The examiner would like to note that claim 15 has the word (canceled) next to it instead of original. It is believed that this is a typo, as the applicant's remarks do not state that claim 15 has been canceled. Therefore for the purposes of this action the examiner is assuming that claim 15 was not canceled.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Whitcomb (6,030,154).

In regards to claim 1, A method for recording an image to be recorded by a direct image scanner on an upper layer of a multi-layered printed circuit board in alignment with an image recorded on a lower layer thereof, the method comprising: visually imaging a portion of the image on the lower layer of said multi-layered printed circuit board, said upper layer and said lower layer being attached to each other when visually imaged, wherein said portion does not pass through said lower layer (col. 3, line 57 – col. 4, line 14: The term visual can be interrupted to include an x-ray image.); and recording a pattern on the upper layer, referenced to coordinates of the visual image of

the portion (col. 3, line 57 – col. 4, line 14: The drilled holes, the positions of which have been corrected by error correction, are the pattern.).

In regards to claim 3, A method according to claim 2 and including forming an opening in the upper layer through which the alignment pattern is visible (col. 3, lines 30 – 35: A window for the x-ray is created where no copper is placed on boards where an alignment mark is expected on one of the inner layers.).

In regards to claim 4, A method according to claim 2 wherein the alignment pattern is visible through the upper layer (col. 3, lines 30 – 35: A window for the x-ray is created where no copper is placed on boards where an alignment mark is expected on one of the inner layers.).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kosmowski (5,529,441).

In regards to claim 1, A method for recording an image to be recorded by a direct image scanner on an upper layer of a multi-layered printed circuit board in alignment with an image recorded on a lower layer thereof, the method comprising: visually imaging a portion of the image on the lower layer of said multi-layered printed circuit board, said upper layer and said lower layer being attached to each other when visually imaged, wherein said portion does not pass through said lower layer (col. 6, lines 36 –

53; col. 5, lines 27 – 36, Figures 7 and 8); and recording a pattern on the upper layer, referenced to coordinates of the visual image of the portion (col. 7, lines 38 – 50).

In regards to claim 2, A method according to claim 1 wherein the portion is an alignment pattern recorded on the lower layer (Figures 7 and 8).

In regards to claim 3, A method according to claim 2 and including forming an opening in the upper layer through which the alignment pattern is visible (col. 5, lines 27 – 36, Figure 6).

In regards to claim 4, A method according to claim 2 wherein the alignment pattern is visible through the upper layer (col. 5, lines 27 – 36, Figure 6).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5 – 7, 9 – 11, and 13 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kosmowski and Lichtenstein (6,205,364).

In regards to claims 5 – 7, Kosmowski discloses (col. 5, lines 27 – 36) that based on the imaged portion from the lower layer the positions of the holes are repositioned to correspond to the imaged portion.

Lichtenstein teaches (Figures 13 and 14; col. 11, lines 55 – col. 12, line 8) that first holes are drilled into a substrate. The holes are then imaged; the locations of the holes are then used to align the pattern on the substrate.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use the printing steps disclosed by Lichtenstein in the multi-layer aligning method disclosed by Kosmowski. Lichtenstein's method would allow for patterns to be more accurately placed on the substrate, which would thus require less correction for the next layer.

In regards to claim 9, A method according to claim 6 wherein the holes are vias (Kosmowski: col. 4, lines 28 – 31: interconnections between points on layers are functional vias.).

In regards to claim 10, A method according to claim 9 wherein the holes comprise functional vias connecting patterns on the upper and lower layers (Kosmowski: col. 4, lines 28 – 31: interconnections between points on layers are functional vias.).

In regards to claim 11, A method according to claim 6 wherein the images comprise electrical circuits and wherein the holes are not related to an electrical function of the printed circuit board (Kosmowski: Figure 6: It has already been shown that Lichtenstein prints electrical circuits on the board in relation to holes. Lichtenstein

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teaches that some of these alignment holes (col. 7, lines 43 – 55, col. 8, lines 11 – 19) have no electrical function. The holes that Kosmowski drills to find the alignment pattern also act as alignment holes for the particular layer that is being worked on, these holes have no electrical function.).

In regards to claim 13, A method according to claim 6 wherein the holes form an alignment pattern, referenced with the image on the lower layer (Kosmowski: Figure 6).

In regards to claim 14, A method according to claim 13 wherein the image comprise electrical circuits and wherein the holes are not related to an electrical function of the images (Kosmowski: Figure 6: It has already been shown that Lichtenstein prints electrical circuits on the board in relation to holes. Lichtenstein teaches that some of these alignment holes (col. 7, lines 43 – 55, col. 8, lines 11 – 19) have no electrical function. The holes that Kosmowski drills to find the alignment pattern also act as alignment holes for the particular layer that is being worked on, these holes have no electrical function.).

In regards to claim 15, A method according to claim 14 wherein the holes pass through the upper and lower layers (Kosmowski: Figure 6: the hole passes all the way through the multilayered board.).

8. Claims 16 – 18 and 20 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taff in view of Lichtenstein.

In regards to claim 16, please see the last office action dated 07/01/05 for reasons of rejection of this claim. The amendment to the claim does not require that the two boards be attached at the time of imaging to detect the alignment pattern on the

lower board. Also, Lichtenstein would need more than one hole to align the printed pattern. And therefore the prior rejection is maintained.

In regards to claim 17, please see the last office action for reasons of rejection of this claim. The amendment to the claim does not require that the two boards be attached at the time of imaging to detect the alignment pattern on the lower board. Also, Lichtenstein would need more than one hole to align the printed pattern. And therefore the prior rejection is maintained.

In regards to claims 18, 20 – 25, please see the last office action for reasons of rejection of these claims, the rejections are maintained.

Response to Arguments

9. Applicant's arguments filed 12/01/05 have been fully considered but they are not persuasive.

10. Please see the examiner's rejections of the claims for response to the applicant's arguments. To recap though, the examiner has provided two references that show visual imaging of a pattern on the lower layer through an upper layer, which is attached to the lower layer. The examiner would suggest that the applicant more clearly define what visual imaging means (to address the x-ray patient) and what kind of window is created to view the pattern on the lower layer. Finally it is the examiner's belief that independent claims 16 and 17 still do not overcome the prior art applied in the first office action. Nothing in the two claims require the upper and lower layer be attached to each other while visually imaging a pattern on the lower layer through the upper layer.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L. Lavin whose telephone number is 571-272-7392. The examiner can normally be reached on M - F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Lavin

A handwritten signature in black ink, appearing to read 'Christopher Lavin', with a long horizontal flourish extending to the right.A handwritten signature in black ink, appearing to read 'Brian Werner', with a long horizontal flourish extending to the right.

BRIAN WERNER
PRIMARY EXAMINER